

WHAT IS CLAIMED IS;

1. A hub dynamo for a bicycle, having a stator and a rotor, the stator fixed to the axle side comprising:

a pair of main iron cores formed of a ring-like plate member and disposed at the stator ends to form a coil chamber;

at least one sub iron core formed of a ring-like plate member and disposed between the pair of main iron cores facing each other to partition the coil chamber;

a coil wire wound in the partitioned coil chambers; and magnetic flux collectors formed of an elongated member extending between the main iron cores, disposed in parallel with each other in the peripheral direction on the outer circumference of the iron cores, which are closely facing elongated permanent magnets aligned and disposed on the inner circumference of the rotor at the wheel side in a state that the magnetic polarity changes alternately in the peripheral direction;

wherein a first magnetic flux collector of the magnetic flux collectors facing one magnetic polarity and a second magnetic flux collector facing the other magnetic polarity are connected to the respective iron cores so as to magnetize the adjacent iron cores to an opposite polarity from each other.

2. A hub dynamo for a bicycle, having a stator and a rotor, the stator fixed to axle side comprising:

a pair of main iron cores formed of a ring-like plate member and disposed at the stator ends to form a coil chamber;

at least one sub iron core formed of a ring-like plate member and disposed between the pair of main iron cores facing each other to partition the coil chamber;

a coil wire wound in the partitioned coil chambers; and

magnetic flux collectors formed of an elongated member extending between the main iron cores, disposed in parallel with each other in the peripheral direction on the outer circumference of the iron cores, which are closely facing elongated permanent magnets disposed on the inner circumference of the rotor at the wheel side in a state that the magnetic polarity changes alternately in the peripheral direction;

wherein a first magnetic flux collector of the magnetic flux collectors facing one magnetic polarity and a second magnetic flux collector facing the other magnetic polarity are connected to the respective iron cores so as to magnetize the adjacent iron cores to an opposite polarity from each other,

magnetic paths for the adjacent coil chambers partitioned by the sub iron core are formed by the sub iron core.

3. The hub dynamo according to claim 1 or 2, wherein the first magnetic flux collector is connected to the main iron core at one end side of the axle and the iron cores of every

other iron core with respect to the main iron core,

the second magnetic flux collector is connected to the iron cores unconnected to the first magnetic flux collector.

4. The hub dynamo according to any of claims 1 to 3, wherein the coil wire wound in each coil chamber is arranged so that the directions of the adjacent winding wires are opposite each other.

5. The hub dynamo according to any of claims 1 to 4, wherein the coil wire wound in each coil chamber is continuously wound in order from the coil chamber at the end side in the axial direction.

6. The hub dynamo according to any of claims 1 to 5, wherein the magnetic flux collectors are fixed to projecting pieces formed on the outer circumference of each iron core by means of caulking.

7. The hub dynamo according to claim 6, wherein, on the outer circumference of each iron core, a concave portion is formed between the convex portions adjacent in the peripheral direction and each of the iron cores adjacent in the axial direction is disposed in a state that the convex portion and the concave portion face each other in the axial direction.

8. The hub dynamo according to claim 7, wherein, in each of the iron cores, a pull-out groove for pulling out the coil wire to the outside is formed to be elongated in the diameter direction and the pull-out groove is formed in a position formed with the concave portion.

9. The hub dynamo according to any of claims 1 to 8, wherein the magnetic flux collector is an elongated plate member and the direction of the plate width of the plate member is oriented to the peripheral direction with respect to the iron core and subsidiary iron core.

10. The hub dynamo according to claim 9, wherein the magnetic flux collector is formed so that the cross-sectional area thereof becomes larger toward a connecting portion with the iron core.

11. The hub dynamo according to claim 9 or 10, wherein the magnetic flux collector is formed so that the width of the plate becomes wider toward a connecting portion with the iron core.

12. The hub dynamo according to any of claims 1 to 11, wherein the sub iron core is formed with a plurality of thin plate members being laminated.

13. The hub dynamo according to any of claims 1 to 12, wherein

the main iron core is formed with a plurality of thin plate members being laminated."